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A new and dynamic approach to auditorium stage design is presented. Contents include--(1) modified proscenium stage plan--a definition, (2) benefits of a modified proscenium stage plan, and (3) details of a modified proscenium stage plan--basic concepts, a typical layout, projection systems, and scenic design for space stage. (RH)

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BULLETIN NO. 105

# NEW SCHOOL STAGES FOR OLD

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PREPARED BY JAMES HULL MILLER, THEATRE DESIGNER

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HUB ELECTRIC COMPANY, INC., 2255 West Grand Avenue, Chicago 12, Illinois

NEW SCHOOL STAGES FOR OLD

# Time to take stock?

- It is astonishing to realize that most theatres are still laid out along lines developed prior to the motion pictures, television and even modern illumination.
- The design of theatre-auditoriums has not kept pace acoustically with the refinements in our hearing abilities brought about by high fidelity and stereophonic sound reproduction.
- New frontiers in visual psychology render most conventional stagecraft a clumsy and inefficient tool for dramatic programs.

# Yes! Hub Electric Co. has taken stock...

- And we present here, a new and dynamic auditorium stage design, the result of study by Hub engineers working with theatre consultants and school architects!

# Modified Proscenium Stage Plan

# About Modified Proscenium Stage Plan Design

"Modified proscenium" may be defined as the reorganization of the overhead space in a proscenium stage theatre plan.

Architectural masking for better acoustics replaces cloth masking systems. A finer quality of lighting is achieved through better equipment locations, reached by catwalks. Background projection replaces drops. The overall stage enclosure, consisting of flexible architectural screens, a plaster cyclorama and optional curtain panels, lends itself to space staging.

## SPACE STAGING DEFINED

Space staging is the practice of dressing and using separate areas of the stage without having to continue the dramatic environments to the proscenium frame.

Set pieces standing free in space replace settings which span the stage from side to side. One can represent many scenes simultaneously instead of moving one large set after another into position.

Set pieces never need be as large as one continuous set, so the variety and spectacle of the scenery can be increased. Also, for space staging, the larger the stage the better, and with a larger stage other school activities can be accomodated properly.

## THE CASE AGAINST LARGE SETS!

On many high school stages the acquiring of a drawing room set is of first importance. Why is this so?

In the first place, a suitable dramatic environment is sought, because an empty stage with a brick wall cluttered with radiators and other service features is no background at all, or even worse, because yards of oatmeal colored draperies have little appeal to the spectator.

Secondly, a room set of sized flats, often with a ceiling piece, gives a better acoustical performance than a draped stage. Such large sets are extremely awkward to handle. Changing scenes means resetting the entire stage.



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On the other hand, a space stage is created by building a beautiful chamber, acoustically efficient, about the entire stage, thus giving us complete freedom within this area to design as we please, with as little or as much scenery as we desire, knowing that the area beyond any particular scene is complete, both visually and acoustically.

## DIFFERS FROM "OPEN STAGE" DESIGN

The difference between the "modified proscenium" plan as described in this bulletin and the "open stage" design as described in Hub Bulletin No. 102 is a difference in the initial ground plan, not in the working methods scenically.

Hub engineers felt that the simple rectangular ground plan of most school auditoriums lends itself most easily to architectural planning for the larger school structure, especially in relation to conventional circulation patterns, including the desirability of the flanking corridors.

It was also observed that the acoustical ceiling for the stage, the spotlighting illumination system serviced by catwalks, and the background projection device could be inserted into most conventional school theatres without changing the basic architectural design – and in space now wasted with acoustically absorptive cloth masking systems which, in turn, encourage the installation of more lighting equipment than required.

Thus, for school requirements, it was felt that the modified proscenium design would have a more direct and immediate application than would the open stage design.

The latter is organized about a more expansive and custom-shaped ground plan which eliminates the proscenium wall entirely and requires structurally a greater free span. The stagecraft remains the same for both designs, however.

## SPACE STAGE CRAFT IS THE ANSWER

Space stagecraft is the one positive answer to the many challenges facing the dramatics instructor. Settings become three-dimensional units in a space whose area is controlled by illumination.

Since the scale of the settings depends on scene design rather than on the happenstance of a proscenium width, the sets may be far more spectacular for the same amount of energy and cost as expended hitherto for the larger sets.

The dramatic pace is quickened, since scene changes are not so burdensome. The improved acoustics of the overall stage environment permit a freer use of the entire area.

Large dramatic backgrounds beyond the set pieces are projected. Light replaces paint, with more artistic force and with greater economy of materials and space.

The living Theatre is no longer the drudge of the sister arts of television and the motion pictures, but goes to the ball.

*JAMES HULL MILLER*
Theatre Designer

# Modified Proscenium Stage Plan Gives You...

### SAVINGS ON STAGE LIGHTING

Hub Engineers compared the dynamic new modified proscenium lighting layout shown in this bulletin to several older school layouts and discovered that this new Hub system saves 25% in equipment costs, even including the architectural downlighting fixtures over the stage area for the general illumination of non-dramatic programs.

Even more significant is a reduction of 40% in maximum current consumption for theatricals. Furthermore, using the downlighting over the stage area instead of specialized dramatic lighting for such programs as band concerts, meetings and early rehearsals, there is a reduction of 55% in current consumption.



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Instead of equipping the stage with borderlights in order to provide the major illumination for all programs, Hub has designed one scientific system for assemblies, forums, lectures and concerts, and yet another for the more complex requirements of dramatic production, at less cost than the older systems.

The production system includes a full complement of spotlights of all types such as are used in the larger professional theatres. To this is added a new background projection system which has proven the most versatile tool of the contemporary stage.

## ALLOWS MORE PRECISE PLANNING

Also, with this plan, it is possible for any school administrator or teacher to use the stage for general assembly without disturbing the dramatic lighting.

The staff member sets the intensity of the general lighting system for the stage by a simple off-on switch; even access to the stage lighting control board is unnecessary. This means that the control board can be designed more precisely for the specialized type of lighting which the theatre requires.

## OTHER COMPARISONS

The new background projection system has made the costly backdrop and the stage fly loft obsolete. No longer must funds be diverted to a large space above the stage which does little more than provide an expensive place to store sets.

With the overall background controlled flexibly by the lighting system, only set pieces are needed to complete the illusion of environment. These can be as spectacular as desired with a fraction of the effort which goes into the full picture frame set.

To this end the modified proscenium design provides an acoustically and visually perfect stage space.

## A FEW ILLUSTRATIONS ...

A Spanish village scene of adobe houses in the hot sun can be fashioned from screens covered with dyed burlap and placed in the forward area, complemented by a background projection the image for which is made from cardboard cut-outs and transparencies of color.

A full stage forest background is a matter of a large 4 by 8 foot sheet of heavy Kraft paper and a sharp knife, created in a matter of hours rather than by weeks of work.

The modified proscenium stage may range from the most realistic to the most abstract styles, and a large amount of scenery can be designed and fabricated in the artist's studio, thus opening up new sources of supply and design ideas.

## THE CURTAIN REQUIREMENTS ...

The only curtains which are required include the main curtain, the curtain which covers the plaster wall to the rear of the stage when it is not required for coloring or projection, and a curtain which divides the stage.

Each of these curtains may be fully withdrawn, leaving the stage a pleasant, dressed space which reflects the spirit of the auditorium. The savings in curtains themselves over the usual school installation is considerable.

## ADVANTAGES OF CATWALKS

The system of catwalks which services the stage lighting enables the lighting artist to reach his instruments in safety and to make adjustments with precision and ease. No longer is it necessary to totter at the top of a step-ladder to set lights or to waste energy by ascending and descending a step-ladder for each lighting adjustment.

The horizontal masking plan which makes these catwalks possible also creates new opportunities for dynamic stage lighting, and in addition to the background projection system we have for the first time proper backlighting, moulding and highlighting the human figure and placing him in relief against the settings.

## CAN BE INSTALLED IN "WASTE" SPACE

It is amazing to realize that this new theatre layout can be designed into the school auditorium in no more space than that usually wasted above the stage. The layout becomes a most versatile tool in the hands of the drama teacher while at the same time it becomes a space more appropiate then hitherto for the remainder of the school's activities.

The concepts and practices which were instrumental in creating the modified proscenium plan were observed by Hub in the field under actual working conditions and Hub is proud to be able to share in the recommendation and instrumentation of these advanced forms for the school system.

NEW SCHOOL STAGES FOR OLD

# Details of the "Modified Proscenium Stage Plan"


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The Fair Park Project,
A Typical Layout.....10-16

The Background
Projection System.....17-19

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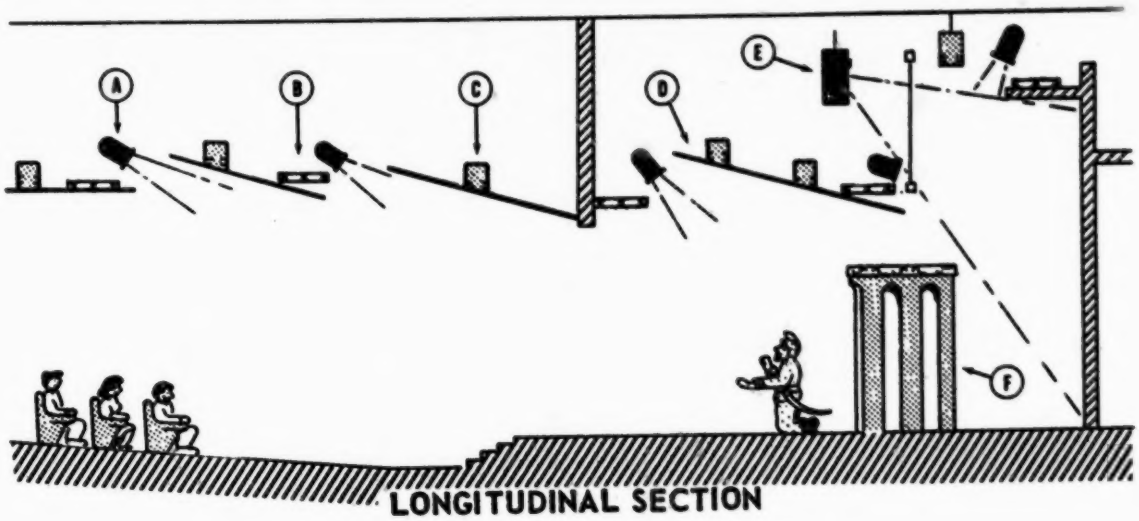
Space Stage.....20-22

# Basic Concepts...



LONGITUDINAL SECTION

Specialized stage lighting spotlights and floodlights.

Catwalks for easy and accurate adjustment of equipment without dangerous ladders or expensive rigging system.

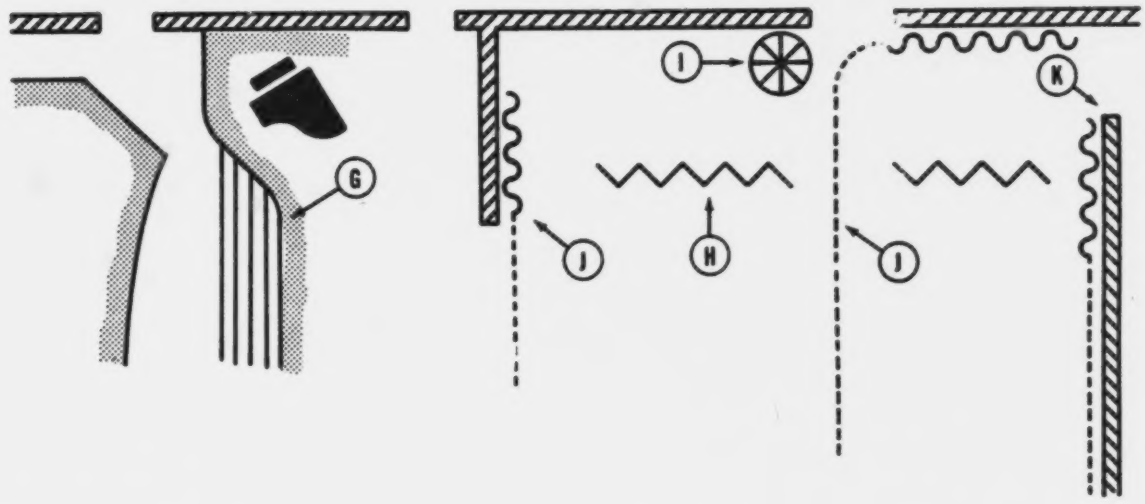
General illumination by efficient flush and suspended downlighting. (Bottom relamping with pole changer over stage). No borderlights are required which ordinarily provide white light.

Acoustical reflectors overhead include the vital acting area; also mark the stage lighting system. These reflectors, made of plaster, transite or other hard panel material, radically improve the acoustics of sound projection.

Inexpensive and versatile background projection system replaces costly backdrops and rigging. See page 17 for details.

Actors and scenic units illuminated <u>from all directions</u>. Efficient light placement by elimination of cloth masking teasers.

# NEW SCHOOL STAGES FOR OLD




PARTIAL FLOOR PLAN

Ample forestage, with front steps, properly illuminated, with easy circulation to and from aisles and seating areas.

Movable sound-reflective, hard surfaced, acoustical screens attached to overhead tracks replace sound absorbent and clumsy side masking cloths.

Staircase to major catwalks for lighting adjustments.

Curtain tracks.

Sand-floated plaster background wall, with cross-over and storage behind. Very light gray for projection.

# Consolidated Equipment Schedule...

.....

**Typical CONSOLIDATED EQUIPMENT SCHEDULE for the "FAIR PARK" large scale plans which follow.**

**Stage Electrical**

1 – Junior Highland Park Flexible Type Switchboard Model JHB642E
(See photograph on back cover)

Dimming Facilities

- Manual dimming control of stage lighting.
- 6 proportional dimming groups, each with one 6600 watt master dimmer and three 2500 watt minor dimmers.
- Each master dimmer serves a dual function; it can operate independently, or as a proportional master. It has mechanical interlock handle extending its control to master handle.
- Each minor control unit is of the modular, plug-in type and has non-interlocking handle.
- Houselights dimmed with motor driven dimmers (or with stage dimmers via transfer switches).

Cross-Connecting Facilities

- Integral plugging panel with 75 safety-type retractable cords and plugs, one for each stage branch circuit with double engraved designations.
- Eight multi-finger jacks for each master dimmer and four for each minor dimmer.

Physical Data

- Baked gray-green wrinkle enamel finish.
- Engraved bakelite nameplates, designation plates, and inscription plates.
- Overall size 86" x 48¾" x 34½" deep.
- Separate housing for houselight control dimmers.

8 – #11302 surface mounted 2-gang 20 amp duplex pin plug pockets.

6 – #11033 flush mounted (wall) 3-gang 20-amp duplex pin plug pockets.

1 – #20009 – 58 ft. plugging strip with 16 circuits, with duplex 20-amp pin plug outlets as shown on diagram.

1 – #20009 – 39 ft. plugging strip with 15 circuits, with duplex 20-amp pin plug outlets as shown on diagram.

1 – #20009 – 40 ft. plugging strip with 10 circuits, with duplex 20-amp pin plug outlets as shown on diagram.

1 – #20009 – 40 ft. plugging strip with 6 circuits, with duplex 20-amp pin plug outlets as shown on diagram.

18 – #8811-S 8" Fresnel spotlights.
6 – #8811-SO 8" oval beam Fresnel spotlights.

4 – #8770 6" condenser lens spotlight.
12 – #8768 6" condenser lens ellipsoidal spotlight.
6 – #8766 4½" condenser lens ellipsoidal spotlight.
21 – #8360 15" wide beam floodlights.
6 – #21632-CM Portable striplights.
1 – #79031 Scene projection lamphouse.

20 – #8909 flush round downlights with baffle rings for 300 watt R-40 lamps (for forestage and acoustical reflector over stage).

5 – #8908-S Suspended type Round Downlights with baffle rings, for 300 watt, R-40 lamps, above open stage area.

6 – #3235-S Suspended type reflector downlights for 300 watt lamps above wing areas.

1 – Remote Control System for the forestage and stage downlighting (see Fair Park second floor plan for circuitry). Include controls and dimmer equipment for general auditorium lighting, as required by project.

**By Others**

Lamps, except for initial projection lamp for Cat. No. 79031.

Tracks for curtains (one front curtain, purchase-line track consisting of two 27 ft. sections; also 156 ft. I-beam channel for two upstage tracks).

Curtains (measurements for curtain heights should be determined after tracks are installed).

For additional details on equipment, refer to catalogs 100 and 102.

# Initial Distribution of Lighting Equipment and Plugging Strip Circuits

On pages 14 through 16 there is described and illustrated the equipment layout shown below for a particular auditorium and stage size; quantity of equipment and arrangement will vary for each project.

**Catwalk P**
**8** – #11302 Pin Plug Pockets, circuits 1-8 (8).
**6** – #8811-S (1000 w) 8" Fresnel spotlights.

**Catwalk Q**
**1** – #20009 58' Plugging Strip, circuits 9-24 as shown below (16)
9-10-11-12-13-14-15-16-17-18-19-20-13-14-21-22-23-24
**6** – #8811-S (1000 w.) 8" Oval Beam Fresnel Spotlights.
**12** – #8764 (500 w.) 6" condenser lens Ellipsoidal Spotlights.

**Catwalk R**
**1** – #20009 39' Plugging Strip, circuits 25-39 as shown below (15).
25-26-27-28-29-30-31-32-33-27-28-29-34-35-36-37-27-28-29-38-39
**9** – #8360 (500 w.) 15" wide beam floodlights
**12** – #8811-S (1000 w.) 8" Fresnel spotlights.

**Catwalk S**
**1** – #20009 40' Plugging Strip, circuits 40-49 as shown below (10).
40-41-42-43-44-45-43-44-45---46---43-44-45-43-44-45-47-48-49
**12** – #8360 (500 w.) 15" wide beam floodlights.
**4** – #8770 (1000 w.) 6" condenser lens spotlights.
**1** – #79031 (1000 w.) Projection lamphouse

**Catwalk T**
**1** – #20009 40' Plugging Strip, circuits 50-55 as shown below (6)
50-51-52-53-54-55--50-51-52-53-54-55
**6** – #8766 (500 w.) 4½" condenser lens ellipsoidal spotlight.

**Stage Floor Service**
**6** – #11033 – Flush wall pin plug pockets, circuits 56-73 (18)

**Control**
**1** – #JHB 642-E
- Manual dimming stage lighting control switchboard with facilities described on page 10.
- All stage circuits designated on above equipments are laminated with the retractable cord and plugs in the cross connecting panel of this switchboard.

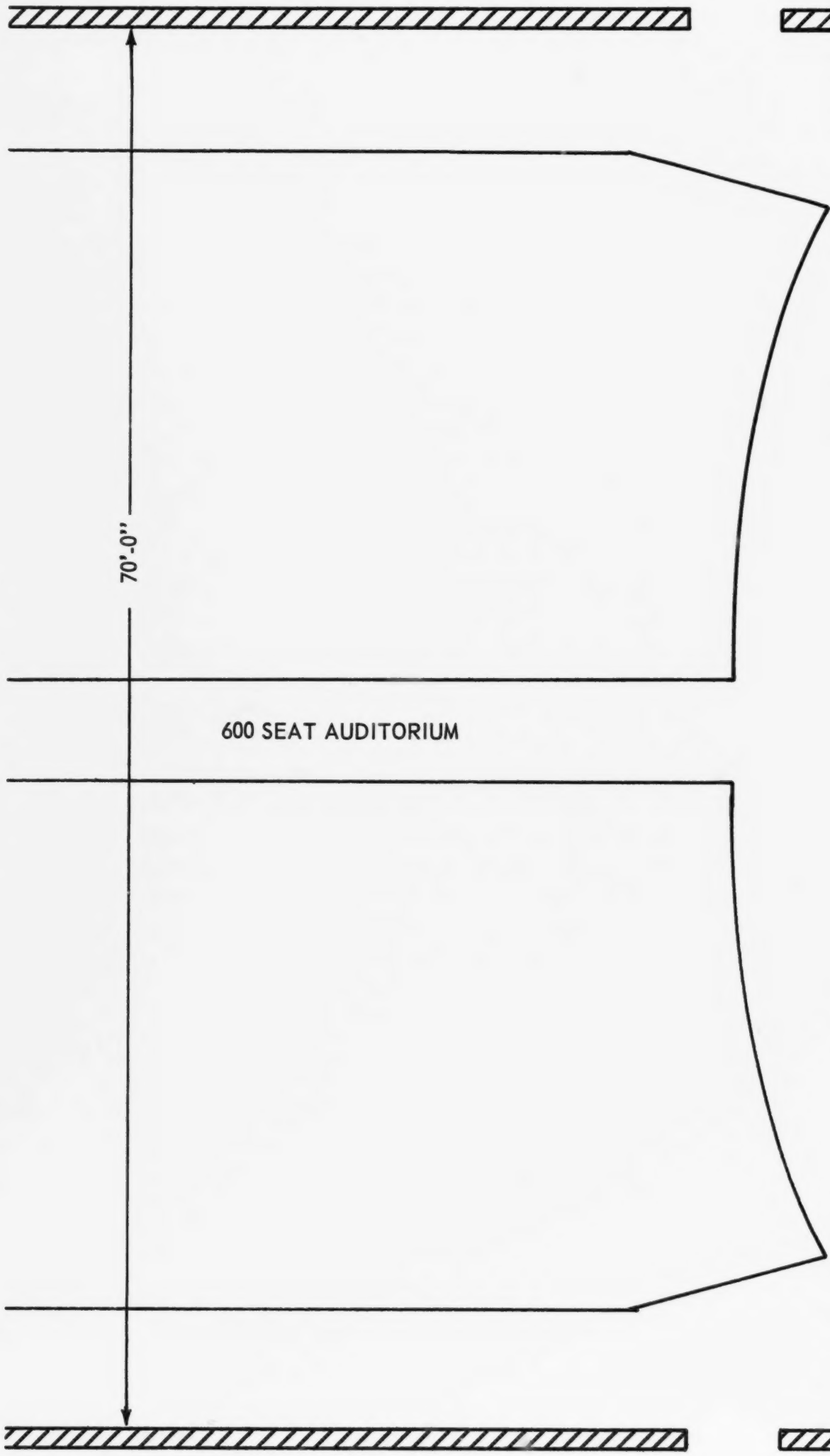
ALL STAGE BRANCH CIRCUITS MUST HAVE INDIVIDUAL NEUTRAL WIRES!

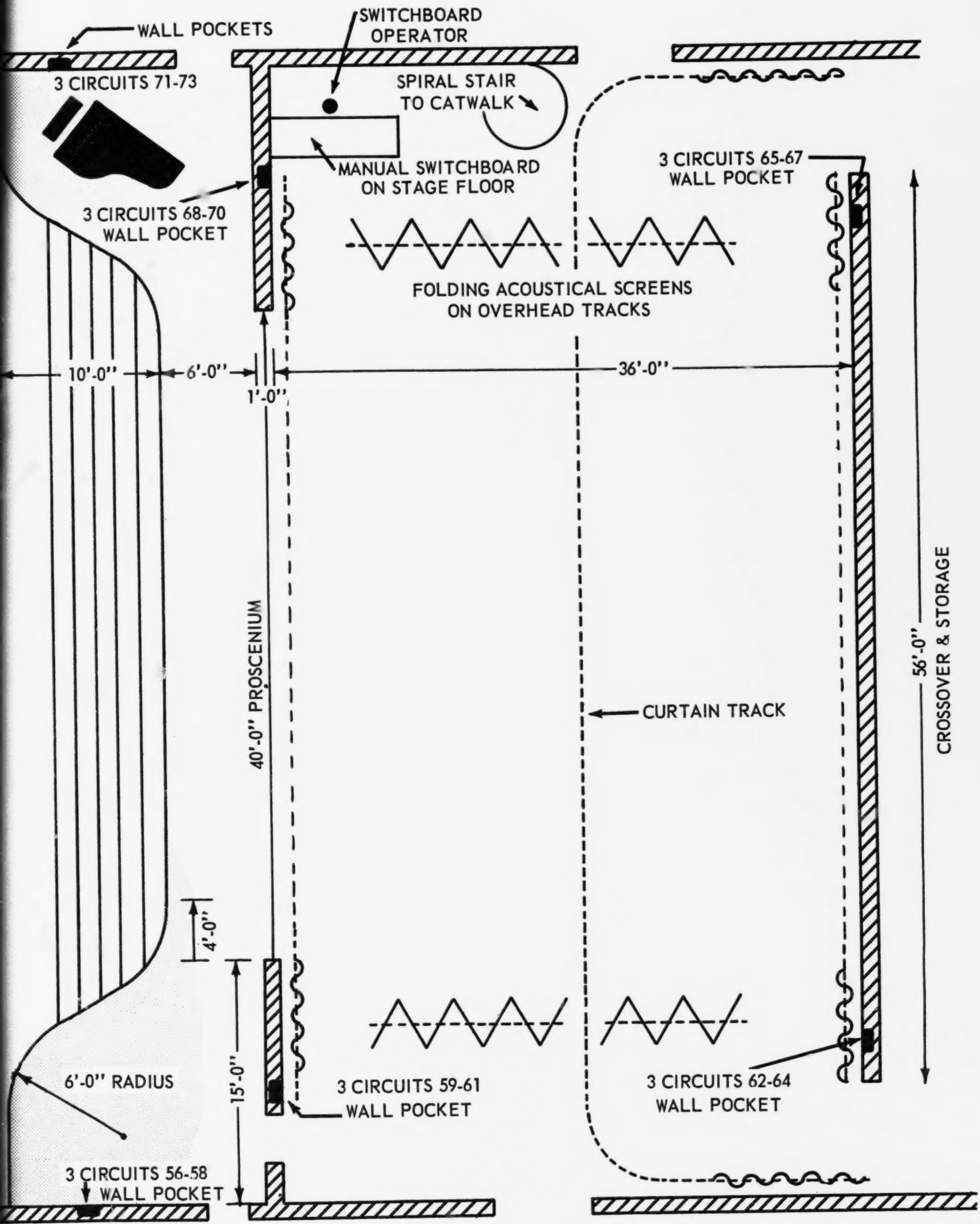
# NEW SCHOOL STAGES FOR OLD

One of many typical lighting hook-ups at the interconnecting panel shown below is indicative of the specialized theatrical illumination possible with budgets below the usual amount for the older lighting systems. As a protective measure, each instrument carries a label clearly indicating the proper lamp, and, on the control board, there is a load meter by which each circuit can be checked for wattage before interconnecting with the dimmer system.

| Unit | No. | Circuits | Total Wattage | Purpose | DIMMERS | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 6600 | 2500 | 2500 | 2500 |
| 8811 Oval | 3 | 13,17 | 3000 | Downstage spotlight fill warm color | x | | | |
| 8811 | 2 | 1,5 | 2000 | Forestage special area | | x | | |
| 8811 | 2 | 2,6 | 2000 | Forestage special area | | | x | |
| 8811 | 2 | 3,8 | 2000 | Forestage special area | | | | x |
| 8811 Oval | 3 | 14,18 | 3000 | Downstage spotlight fill cool color | x | | | |
| 8764 | 5 | 9,11,12 15,16 | 2500 | Downstage crosslighting | | x | | |
| 8764 | 5 | 19,20 21,22 24 | 2500 | Downstage crosslighting | | | x | |
| 8764 | 2 | 10,23 | 1000 | Center crosslight special | | | | x |
| 8811 | 2 | 26,37 | 2000 | Illumination complex | | | | |
| 8770 | 1 | 49 | 1000 | for special acting | x | | | |
| 8776 | 2 | 52 | 1000 | area | | | | |
| 8360 | 3 | 27 | 1500 | Color toning for acting area | | x | | |
| 8360 | 3 | 29 | 1500 | Color toning for acting area | | | x | |
| 8811 | 2 | 30,36 | 2000 | Special acting area | | | | x |
| | | | | (To master cyclorema) | in series | | | |
| 79031 | 1 | 46 | 1000 | Projection image | | x | | |
| 8360 | 4 | 43 | 2000 | Cyclorama color | x | | x | |
| 8360 | 4 | 44 | 2000 | Cyclorama color | | | | x |
| | | | | (To master 3 areas below) | in series | | | |
| 8811 | 2 | 28 | 2500 | Special acting area | | x | | |
| 8360 | 1 | 32 | | | | | | |
| 8811 | 1 | 25,33 | 1500 | Special Acting area | x | | x | |
| 8360 | 1 | | | | | | | |
| 8811 | 2 | 31,35 | 2500 | Special acting area | | | | x |
| 8360 | 1 | 39 | | | | | | |
| 8811 | 3 | 34,38 | 3000 | Acting area | x | | | |
| 8770 | 1 | 40 | 1000 | Moonlight shaft | | x | | |
| 8770 | 2 | 41,48 | 2000 | Upstage special | | | x | |
| 8766 | 4 | 51,55 | 2000 | Wide angle backlighting | | | | x |

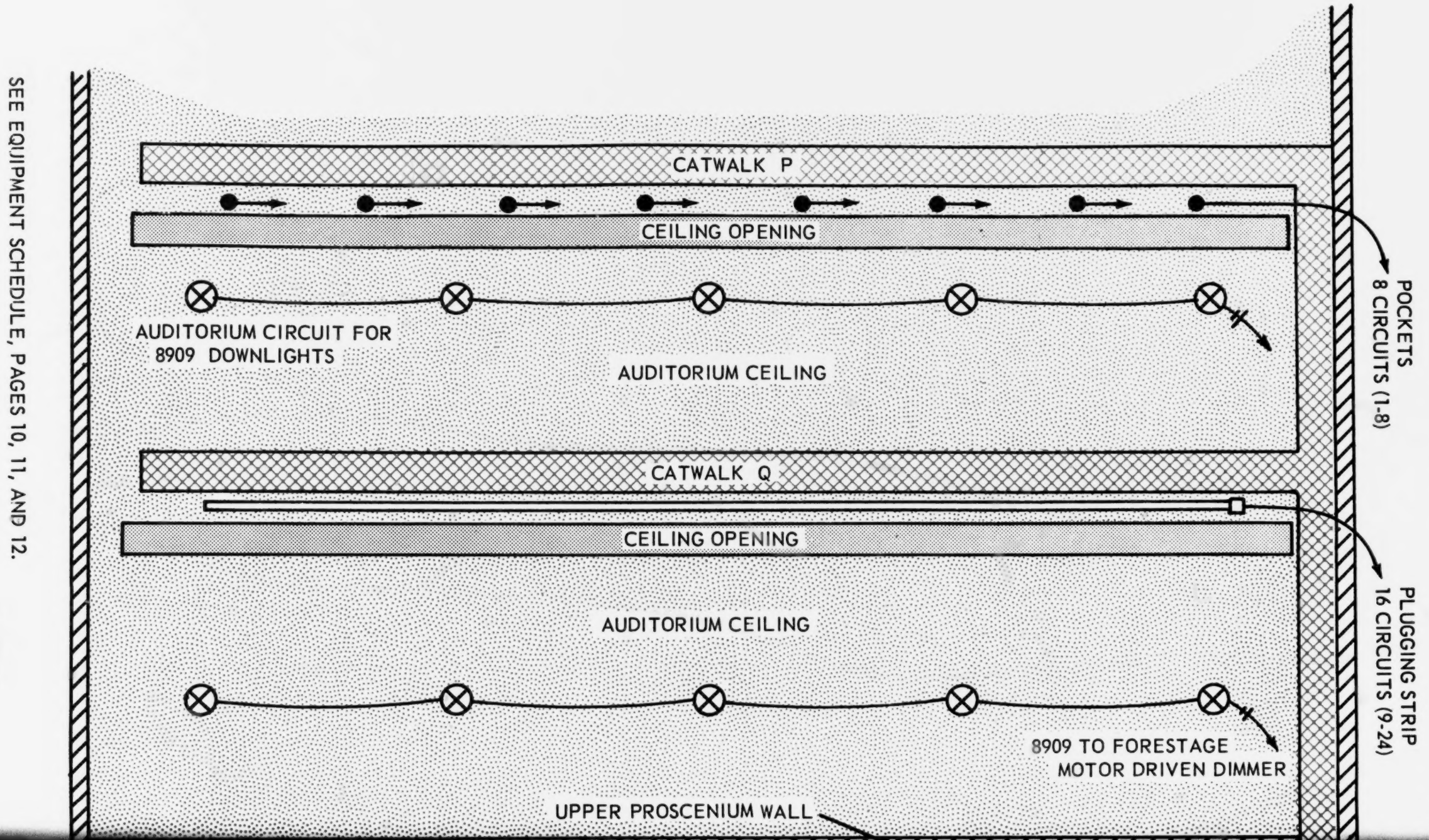
# NEW SCHOOL STAGES FOR OLD






FAIR PARK PROJECT FIRST FLOOR PLAN SCALE 1/8" – 1'-0"

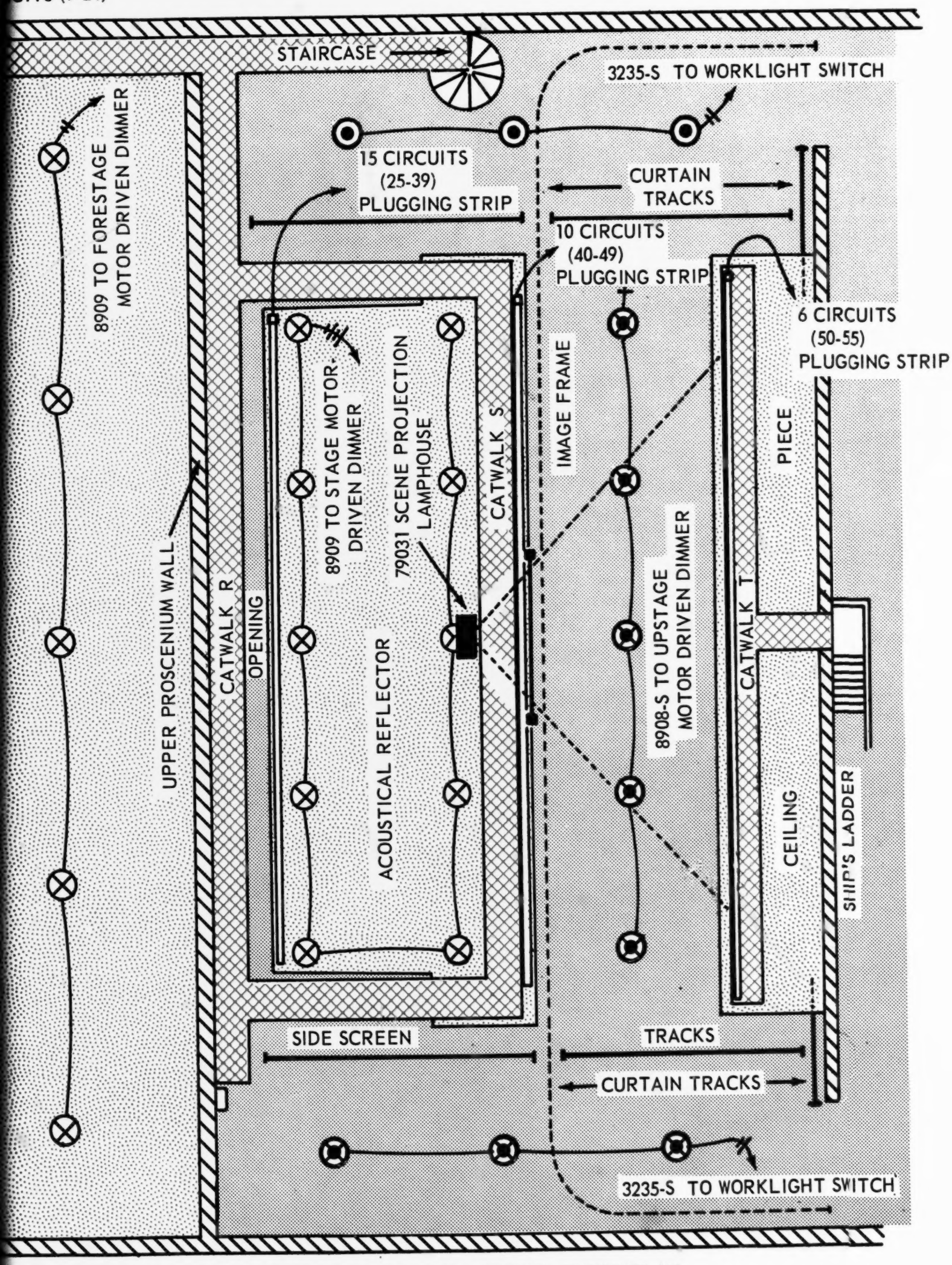
# NEW SCHOOL STAGES FOR OLD




SEE EQUIPMENT SCHEDULE, PAGES 10, 11, AND 12.

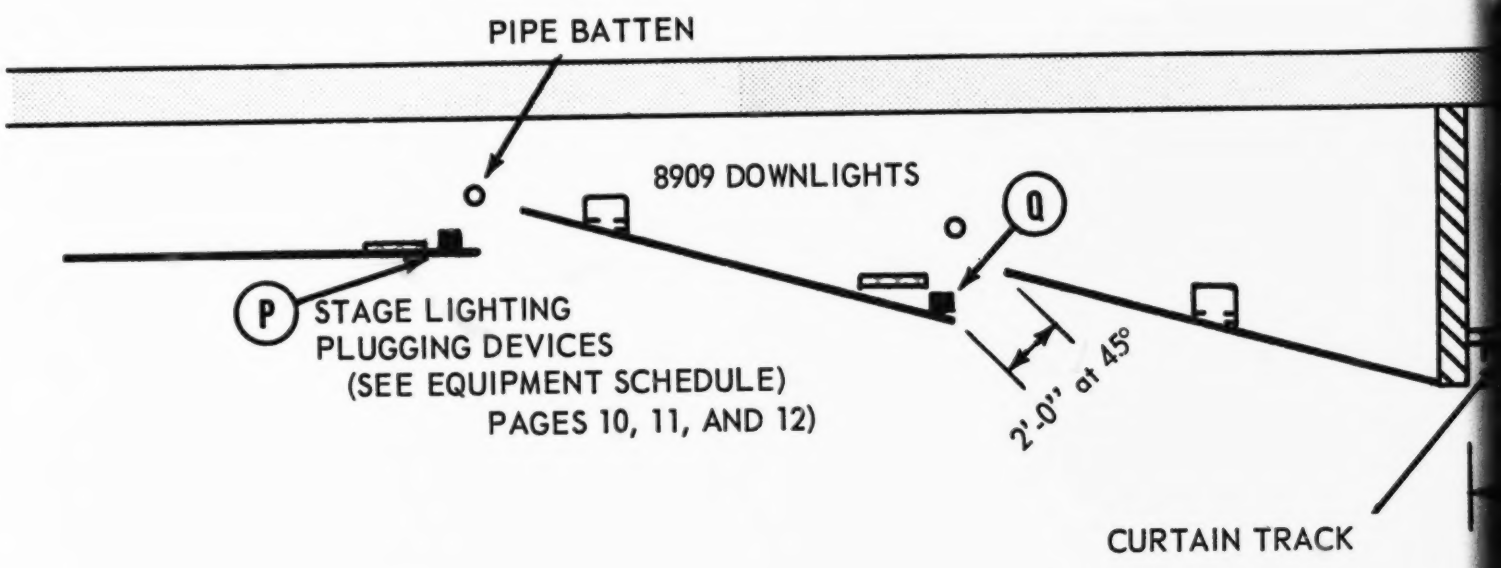
ALL STAGE BRANCH CIRCUITS MUST HAVE INDIVIDUAL NEUTRAL WIRES.

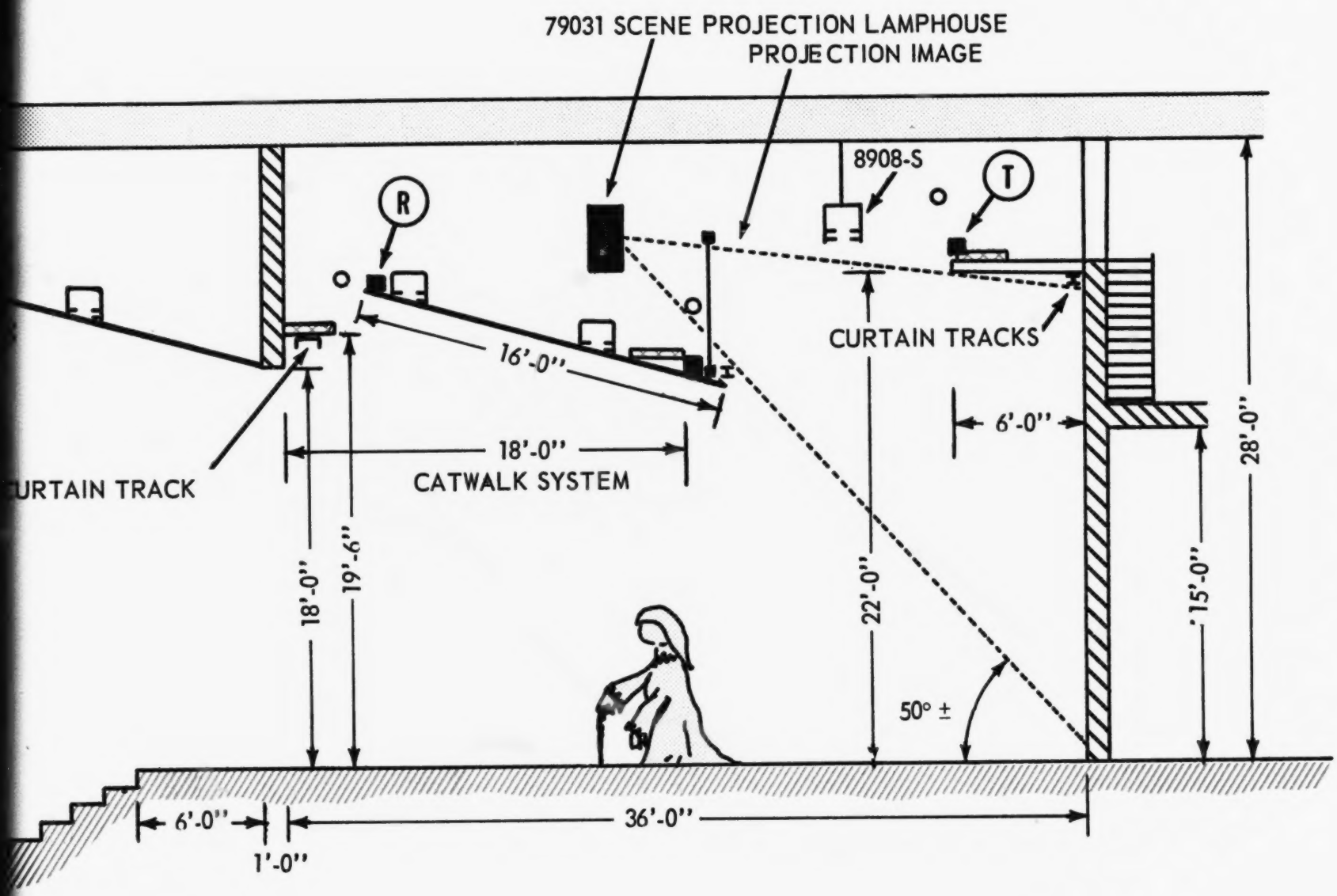
NG STRIP
UITS (9-24)




FAIR PARK PROJECT – SECOND FLOOR PLAN
Scale 1/8" – 1'-0"

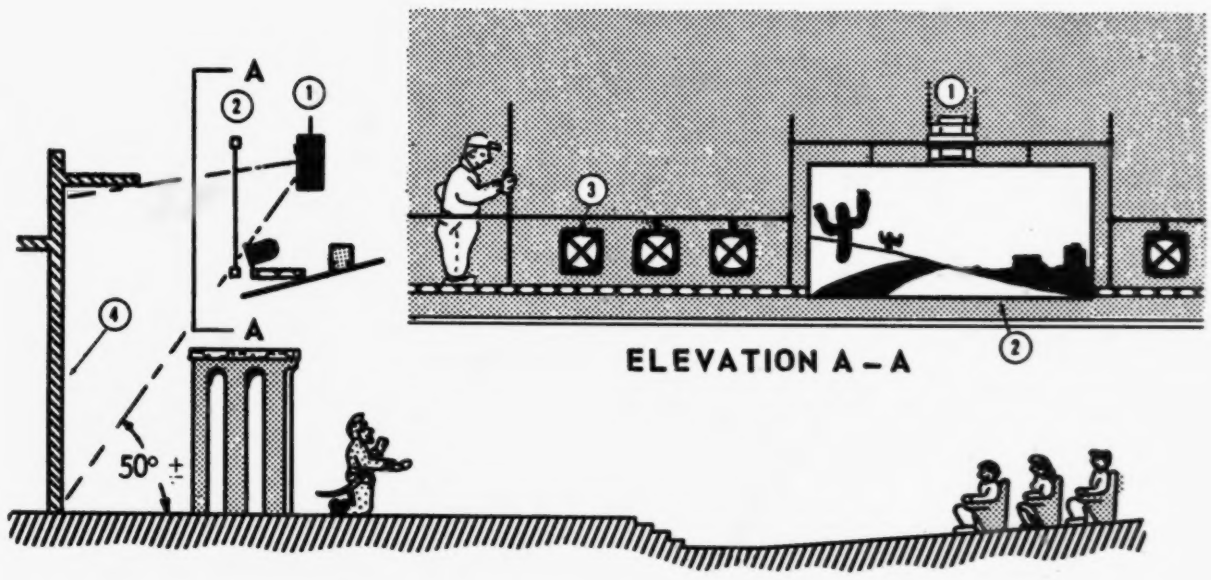
# NEW SCHOOL STAGES FOR OLD






LONGITUDINAL SECTION "FAIR PARK" SCALE 1/8" – 1"-0"

# Background Projection System




ELEVATION A – A

LONGITUDINAL SECTION THRU REAR STAGE

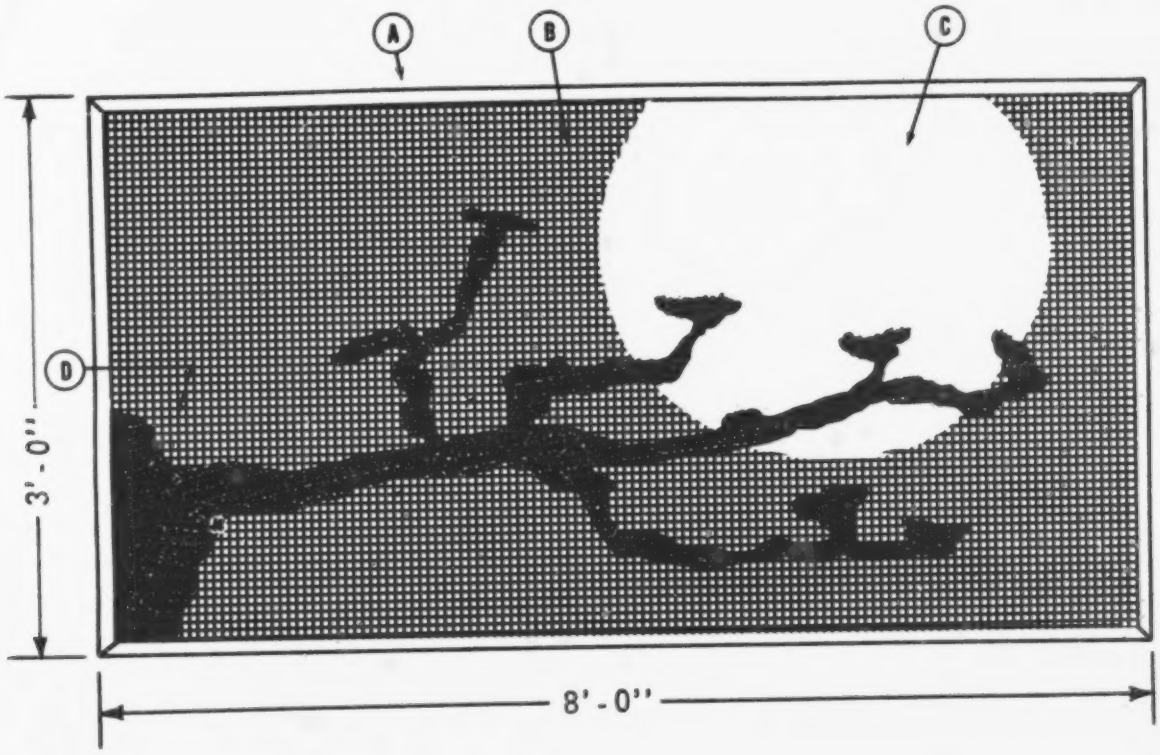
This is the first efficient background projection system to be available to the living stage. Obviously, this installation would be next to impossible in the older proscenium stage arrangement with its series of overhead masking teasers, with or without a fly loft.

The principal source of illumination for the system is a small filament projection-type lamp contained in the Hub #79031 Scene Projection Lamphouse (1), equipped with a forced air-flow system, four-way framing shutters, flexible lamp positioning arbor and clips for color media.

Light from this point source passed through the distortion-free image plane (2) about 3½ to 4 feet away and down onto the sand-floated plastered background wall (4). Note that the guard-and-equipment-mounting rail does not pass through the image area of approximately 9 feet in width.

The image itself may be fashioned from a variety of inexpensive materials, such as dyes on acetate sheets, wrapping paper or cardboard cutouts, mosaics of gelatin or plastic colors, or simply silhouettes of actual objects. Floodlights (3) on either side of the projection image color the shadow areas of the composition. Useful color combinations for these floodlights are blue-green, blue and orange.

With the proper installation of this projection system an important educational tool has been placed in the hands of teacher and student. Using these inexpensive materials, backgrounds which previously took the form of large painted backdrops can be fashioned now in the art classroom. Here is a typical image, taken from a contemporary setting for the opera MADAM BUTTERFLY, for a night sky in the garden.




(A) Frame of 1x2 in. stock

(B) 1/8" in. mesh hardware cloth

(C) "moon" area removed

(D) cardboard profile

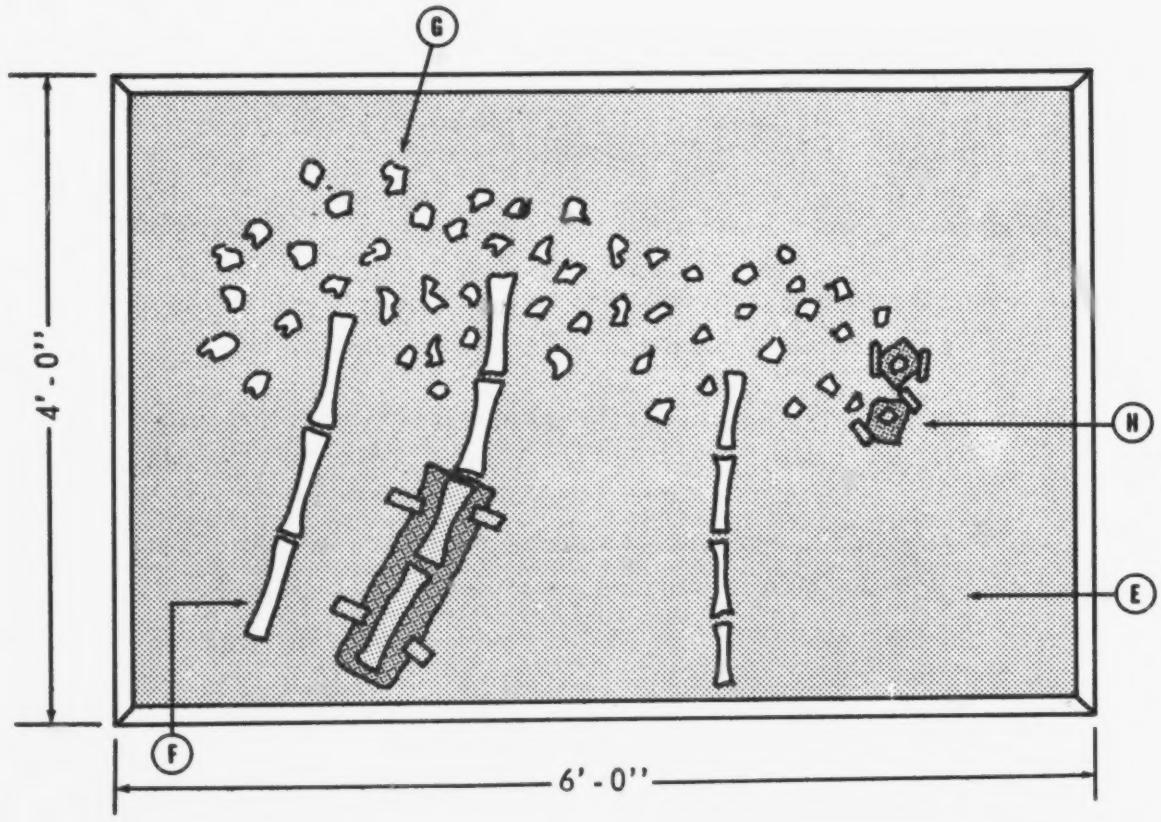
Mesh (B) appears gray to the human eye in contrast to the moon area (C)

Gelatin or plastic color medium placed at the #79031 Scene Projection Lamphouse gate (1) controls general background color, except

shadow area (D) which is colored by soft lighting from the floodlights (3).

Dozens of different color combinations can be evolved without changing the physical image. Here the moon and screen area might be a romantic pink, the color placed at the lamphouse gate, while the shadowy profile of the flowering tree might be a moody blue-green from one circuit of the floodlights. Alterations to the image are made easily.

Another imaginative background projection, done on heavy Kraft paper in a somewhat opposite technique, is shown below. The slender tree trunks have been removed with a sharp knife and the leaf pattern punched out with a pencil.




(E) Heavy Kraft paper as found around bundles of wallboard.

(F) tree trunks are cut out.

(G) leaf patterns are punched out.

(H) scraps of gelatin or plastic color media are taped down over cut-out areas.

In operation, the trunk and leaf patterns are projected in light upon a background wall already colored by a softer light from the floodlights.

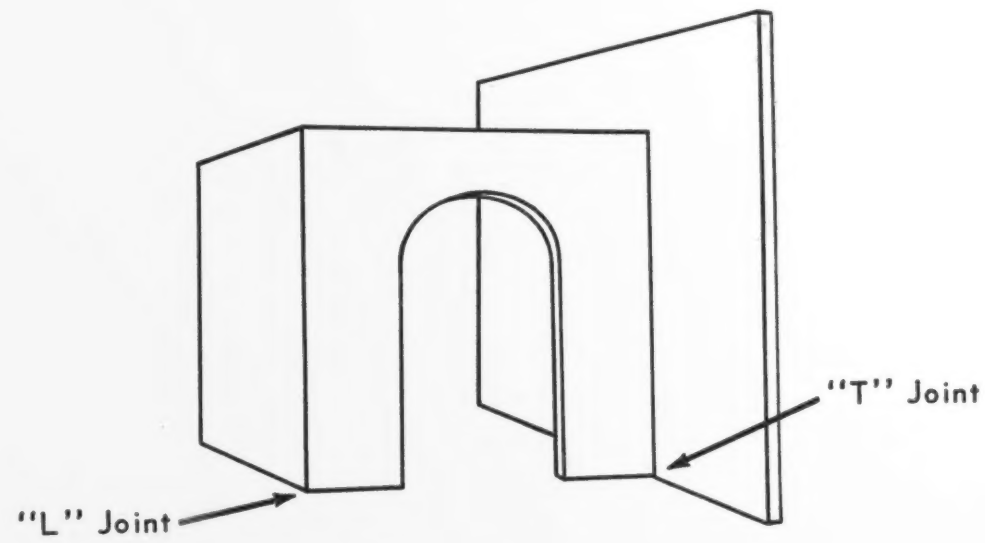
These two examples will serve to show the extreme versatility of the direct beam projection system of which the Hub #79031 Scene Projection Lamphouse is a vital part. These examples also show the simple materials from which the most complex imagery can be fashioned. No other comprehensive system for background projection possesses such flexibility, similar economy or artistic possibilities. Further information on this system is available from Hub Bulletins #102 and #104.

# Scenic Design for Space Stage

Space stage sets are simply sets that are surrounded by free space, both above and to the sides. This is in sharp distinction to sets which rely on a proscenium frame and overhead masking for their beginning and ending. The space set springs from the heart of one acting area among many; the framed set is built about the perimeter of the acting area, thus limiting the stage's use to one scene at a time. The chief importance of space staging lies in this freer use of a large playing area, whereby smaller scenes may be deployed simultaneously.

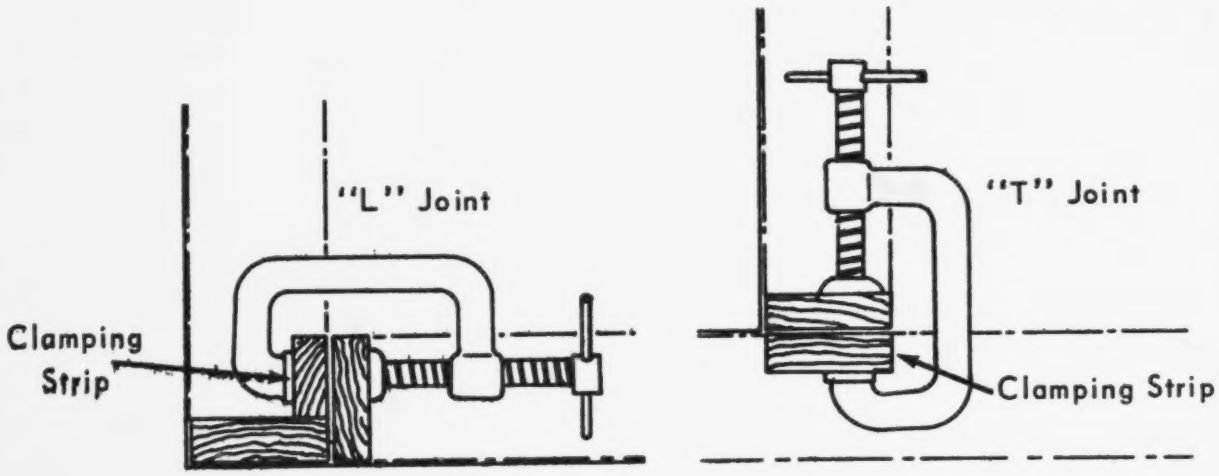
There are three techniques the artist who is new to space staging must learn. Beginning with the simplest, there is the matter of bringing actors from the wings to isolated settings. This is accomplished by masking links in the form of multifold screen units discreetly placed upstage. The folds are arranged to make the screens self-supporting and pleasant to regard. Heights of panels are determined by masking requirements. Often no more height is necessary than that to mask the movement of actors. As a general rule, these screens are surfaced with neutrally colored fabrics and they should overlap rather than connect sets and wing pieces. Detailed information on the construction of such units will be found on pages 14 and 15 of Hub Bulletin #104.

The second technique involves the structuring of space sets themselves in such a manner as to make them inherently self-supporting, since conventional bracing would be too exposed to be of much use here. Nor is lashing satisfactory, as space stage sets do not possess the proper mass to keep the separate pieces from slipping and loosening. Space sets must be hinged or clamped.



Clamping two flats together so as to form a "T" in plan is most desirable. Next, double "L" joints are satisfactory. Combinations of both create a solidity to the set piece which will permit the swinging of simple doors.

Sets which can be clamped together easily are built of 1" x 2" battens with the framing on edge rather than flat. It is simple to clamp one unit to another. Turning a corner, the "L" joint, or meeting another frame at its center perpendicularly, the "T" joint, merely means adding a batten for a clamping strip at right angles to the framing of one of the units being joined.




The clamp, the hinge, both fixed and loose-pin, and the cloth flap hinge used in folding screen units will provide a complement of fastening devices sufficient for most space stage settings. The cloth flap hinge, as described in Hub Bulletin #104, is most useful for joining a series of arch panels which form a pavilion, where storage is by pleat folds, thus requiring two-way, crack-free hinge joints.

The third technique, perhaps the most difficult for the artist new to space staging, is the manner by which dramatic environments, originally conceived in terms of the smaller picture frame stage, are transposed to the modified proscenium and open platform stages.

Since the open stage does not attempt a full realistic transcription of a specific environment, spread across the entire stage, but rather a partial one set against the architectural appointments of the theatre, the first step towards design is the selection of materials for scenery which possess strong architectural overtones. Successful choices are burlap textures, dyed or sprayed, and Indian Head fabrics, for example. These may be stapled to frames over an underlay of heavy Kraft paper which make the screens opaque. "Hard" surfaces such as plywood, wall boards and sized muslins do not look as substantial under stage illumination as the heavier textures and dyed fabrics.

The next step involves the shape of the design itself. Since the set piece depicting the immediate dramatic environment stands in space, it is often possible to employ this space for the suggestion of the larger en-

veloping environment. For instance, screens depicting a house interior may be backed by a projection on the paster wall descriptive of the village to which the house belongs.

Space stagecraft is unique in that it offers the artist the opportunity to explore the complete geographical environment of a dramatic work in a forthright yet economical manner.

**Service to Architects**

Hub has developed plans for other auditorium sizes, both smaller and larger than the one shown in this bulletin. These plans are available upon request.

A word of caution is necessary. The various parts of the stage are interconnected to such a degree that centralized supervision of all installations is required. Such relationships as angle of background projection to rear wall, ceiling plane to acting area and sightlines past the ceiling plane to backlighting are typical of highly engineered complementary functions, not to mention the various parts of the projection system itself.

The Hub Electric Co. invites correspondence and welcomes the opportunity to serve in the development of the high school theatre.

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**STAGE AND AUDITORIUM**
**PLANNING SERIES ARTICLE NO. 6**

This is another of a series of articles written by outstanding authorities in the field of theatre design and stagecraft for distribution to architects, engineers, and education theatre directors and technicians. The Hub Electric Company trusts that the information contained in this article will help those who are planning new theatres, who are remodeling existing theatres, and who are considering the purchase of new or additional equipment to obtain the most flexible arrangement of space and the most satisfactory equipment. The Hub Engineering Department will be happy to make recommendations regarding the arrangement of space on the stage and the kind of lighting control equipment that will be appropriate for a particular installation.

**HUB ELECTRIC COMPANY, INC.,** 2255 West Grand Avenue, Chicago 12, Illinois

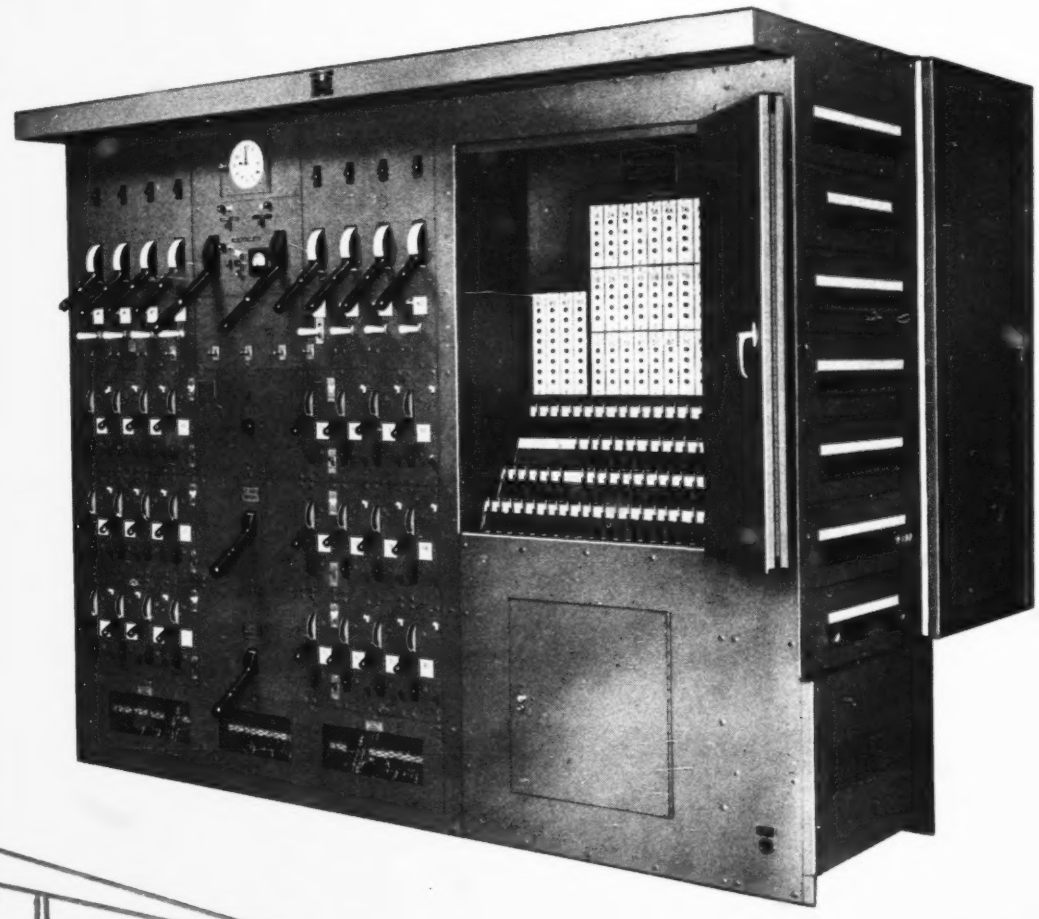


STAGES FOR OLD
NEW SCHOOL

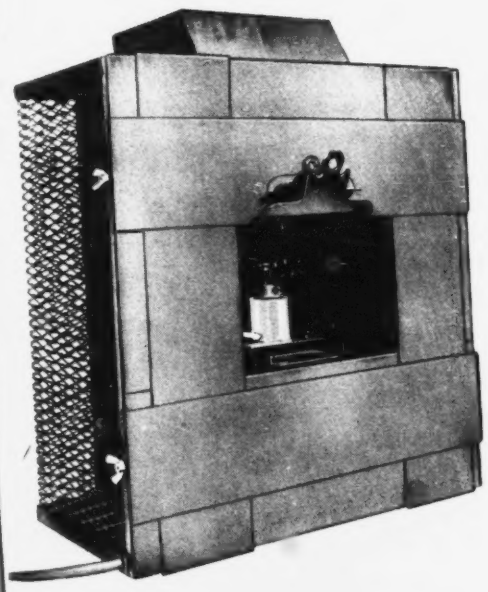
Model JHB-642-E
Junior Highland Park
Bench Type
Switchboard

The Junior Highland Park switchboard at left is the switchboard suggested for the "Fair Park" project described in this bulletin. However, since switchboards are custom built, many variations can be incorporated into it to fit specific project requirements.

If a more flexible switchboard is desired, with larger dimming capacity, we suggest the Highland Park switchboard shown below.



Model HP-843-E
Highland Park
Switchboard



No. 79031
Scene Projector

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